EM-453 COMMENT ON DRAFT FINAL PHASE I RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION/REMEDIAL INVESTIGATION WORK PLAN, ROCKY FLATS PLANT, OTHER OUTSIDE CLOSURES, OPERABLE UNIT 10

Notes: 1. Paragraph numbering begins at the beginning of the referenced section, or from the first complete paragraph at the top of the page. Incomplete paragraphs are referred to as top-of-page.

2. Document was missing pp. 2-30 to 2-132. This information was on-site history. Document was also missing p. 7-22.

GENERAL COMMENTS:

1. The document is organized according to the standard Rocky Flats Plant (RFP) format; however, this work plan differs from the others in the program in that there is no unification of these sites. The approach in the document is correctly Individual Hazardous Substance Site (IHSS) specific. The organization of this report has resulted in three sections (2.1, 2.2, and 7.3) that contain IHSS-specific information. Because there are 16 sites under investigation, each subsection must be read together to understand the field program at each IHSS, resulting in a lot of flipping back and forth from section to section. To aid the reader and any field personnel using the document, placing the site-specific history, data needs, and field plans together would solve this problem.

2. The risk assessment (RA) plan and environmental evaluation (EE) plan diverge from the field sampling plan in that the RA and EE approach are on an operable unit basis, while the field sampling is on an IHSS-specific basis. It would appear appropriate to link all of the programs together by the IHSS-specific approach.

3. The groundwater investigation component of this plan does not appear to be properly scoped. The installation of a single well before screening or soil sampling may result in placing a well next to a site that may be "clean." In that case there would be no reason to install a well. Also, waiting for the results of the screening and soil sampling would aid in the placement of the well for groundwater monitoring purposes. Several of the sites are located in areas already undergoing extensive groundwater investigations. If possible, the groundwater investigation for sites located within areas already investigated should be dropped and addressed under these operable units.

4. The section titled "Data Needs and Data Quality Objectives" is general in nature and does not supply any information that is specifically applied to this operable unit. Data needs are addressed in Sections 2.1 and 2.2, while data quality objectives are addressed in Section 7.3. These three sections would benefit by more specifically identifying the data gaps in Section 2 and the level of information required to fill those gaps in Section 7.

DRAFT

5. The final objective of these investigations is not presented. The title would suggest that a Resource Conservation and Recovery Act closure action is the preferred goal, but this is never stated. The Corrective Measures Study/Feasibility Study process is only described as a task to be completed in Section 5.0. While it is early to discuss specific options, general steps should be determined. The variety of sites presented here--tanks, inactive storage facilities, and active permitted facilities--would suggest that a variety of methods will be employed for closure to be complete. These preliminary decisions should be presented. An example would be if an underground tank is to be removed or abandoned in place.

6. The document would benefit from a technical edit because as there are several typographical errors and poorly constructed sentences.

SPECIFIC COMMENTS:

1. Executive Summary, p. ES-3, paragraph 2: The number of Lysimeters and Tensiometers should be mentioned.

2. Section 1.2, p. 1-6, paragraph 1: There is no Community Relations Plan (CRP) provided with this draft. Either provide a copy or delete reference to the CRP.

3. Section 1.2, p. 1-7, paragraph 2: This work plan should present the specific actions, in enough detail to be used by field personnel, which will be undertaken in this investigation. The reference to certain actions being reduced in scope is not clear and should be deleted.

4. Section 1.3.2, p. 1-10, paragraph 1, last sentence: This sentence is correct, but vague (i.e, "What areas are considered to be significant contributors to environmental contamination?). Because this sentence is not necessary, and it is not the purpose of this document to present a broad overview of RFP environmental problems, we recommend deleting this sentence. Referencing the appropriate documents is sufficient.

5. Section 2.0, p. 2-1, paragraph 4: The rationale for the judgement that background soils data cannot be directly compared or correlated with soil data needs to be presented and explained in detail. It is not clear why the background data cannot be directly compared or correlated to the IHSSs. If the data cannot be used in this way, they cannot be used at all. This rational for judgement is also contradicted in this paragraph because the statement is made that background data will be used to distinguish contaminated areas from noncontaminated areas. Please clarify.

6. Section 2.1.1.3, p. 2-9, paragraph 2, sentence 2: The discussion on the hydrogeology/geology of the facility would suggest that most likely groundwater does not flow "into" the Walnut Creek drainage but "towards" it (i.e., the drainage does not intersect the water table). Please clarify or change the wording of the sentence. (Paragraph 4 on p. 2-10 also would indicate that use of the word "into" is incorrect here.)

7. Section 2.1.14, p. 2-11: From Figure 2.0-2 there appears to be wells located up-and-down gradient of this site. While these wells are not located directly adjacent to the site, they would provide a general overview of the groundwater quality in the area of the tanks.

8. Table 2-1, p. 2-20: The footnotes address concentration units; however, each individual unit measurement is not identified. Please include units on the table.

9. Section 2.1.3.1, p. 2-23: The "cleanup" of the storage yard should be explained in more detail. What exactly was "cleanup?" The relationship of the 90-day permit to this investigation should also be described.

10. Section 2.1.3.2, p. 2-26: This discussion is not clear, and the second sentence does not make any sense. Please clarify why the tank content's chemistry is of concern at this site.

11. Section 2.1.4.1, p. 2-27, paragraph 2: The specific hazardous constituents should be presented, if known.

12. Section 2.1.16.1, p. 2-148, top of page: The detection limits of the instruments should be provided.

13. Section 2.1.16.3, p. 2-150, paragraph 3: A variance of 6 feet in a nonproducing well is generally not considered "stable." Do the authors mean that water level changes are predictable? Please clarify.

    Please clarify how contamination from IHSS 214 can get to South Walnut Creek without being detected by sampling in well 33-86. The last sentence does not appear correct.

14. Section 2.1.16.4, p. 2-151: Table 2-16 only shows that one sample had higher than background levels of alpha and beta radioactivity. Please clarify the use of the plural "borings" when referring to this data.

15. Section 2.1.16.4, p. 2-153, paragraph 1: Figure 2.1-38 does not show cadmium levels. Please clarify.

16. Figure 2.2-1, p. 2-157: The site conceptual model should be corrected so that it agrees with information presented in Section 1.3.3.7. This discussion indicated that the streams and ponds in this area are losing water to the alluvium/colluvium. This figure shows that the streams gain water from the alluvium/colluvium. This a critical point with regard to migration pathways and receptor analysis, and a clear consistent model should be presented.

17. Section 2.2.1.1, p. 2-158, paragraph 1: The discussion on "large overflow" was not included in Section 2.1.1. Section 2.1.1 should provide specifics regarding estimated amounts of the overflow and measures taken to cleanup after the spill.

18. Section 2.2.2.5, p. 2-160, paragraph 1: The statement "if the site is excavated" is unclear. If this is the only potential exposure pathway, this fact should be stated.

19. Section 2.2.3.2, p. 2-161: The use of "anions" is not clear; it appears that what is meant is acidic conditions as the result of battery acid spills. For the sake of clarity, please rephrase to state acidic or abnormal hydrogen-ion concentration (pH) conditions.

20. Section 2.2.4.2, p. 2-164, paragraph 1: The text has not described how "inorganics" differ from metals. Please clarify.

21. Section 2.2.4.4, p. 2-165, paragraph 2: This paragraph is not clearly written. It appears that an attempt is being made to dismiss migration of contaminants from this site to groundwater. Because vague general statements are made, the specific purpose of each sentence is unclear. Please provide a more specific discussion of the behavior of each general type of contaminant, outlining the most likely possibilities of how the contaminant will behave in the environment.

22. Section 2.2.5.1, p. 2-166, paragraph 1: The phrase "may be the primary source of contamination" is not supported by the next section which states that drum storage has impacted the soils at this site. Unless there is another potential source, the words "may be" should be deleted.

23. Section 7.2, p. 7-3, top of page: The inclusion of groundwater monitoring wells in this field investigation does not appear necessary, and the rationale is not presented. The limited scope of this work plan and the geographical distribution of these sites (near or within other operable units) would suggest that a case could be made for dealing with each of these IHSSs as strictly a source for contamination (i.e., a soils

problem). This would allow the groundwater problems to be transferred to the larger operable units, some of which are already implementing Interim Actions.

24. Section 4.1.2 , p. 4-3: The availability and quality of physical data should be discussed. That data is a necessary part of any study. The Operable Unit (OU) is located at or near several other OUs. Physical data collected during the investigation of those units is probably available.

25. Section 4.1.3, p. 4-3: The discussion of models needs to be more specific. Conceptual models are discussed. Only risk assessment modeling is detailed. Other forms of models can be developed from the data collected during this study.

26. Section 5.1, p. 5-1, paragraph 1: Development and preparation of the Work Plan should be included in project planning.

27. Section 5.2, p. 5-2, paragraph 1: A statement clarifying the release of the final CRP should be made. It was scheduled to be released in August 1991. The date of this work plan is November 1991. The final CRP should have been released or some reason for its not being released should be given in the text.

28. Section 5.3, p. 5-3, paragraph 1: Soil gas investigations which are intended at the sites should be included in the text.

29. Section 5.4, p. 5-2, paragraph 3: Data validation should include all types of data, not analytical data only. Data derived from field studies (i.e., water level data, soil gas data, drilling data, and soil data) are used in the same models and for the same purposes as are analytical data. This intended use would require that all data receive the same levels of scrutiny.

30. Section 5.7.1, p. 5-9, paragraph 6: The objectives for remediation should be given in the text or a reference where they can be found should be given. If there are not objectives defined for OU10, then the sentence "General response actions are defined as those broad classes of actions that may satisfy the objectives for remediation defined for OU10." is misleading.

31. Section 5.7.2, p. 5-16: Clarification as to the number of evaluation criteria should be made. In two cases, there are nine criteria mentioned, and in one case there are eight criteria mentioned.

32. Section 5.8, p. 5-17, paragraph 1: A mechanism for presenting treatability study findings needs to be given. Treatability studies work plans are discussed. The schedule shows that the treatability studies are projected to be ongoing when the final Remedial Investigation/Resource Conservation and Recovery Act Facility Investigation report is submitted. The text does not mention a deliverable coming from the treatability study. Please explain how the findings from the studies are to be presented.

33. Figure 6.0-1, p. 6-2: The Baseline Risk Assessment should be termed a Limited Baseline Risk Assessment. The schedule should be specific in terms of the Risk Assessment being limited to certain pathways and media.

    The Development and Screening of Remedial Alternatives should be termed a partial Development and Screening effort.

34. Section 7.2, p. 7-3, paragraph 3: The "BAT" technology should be described or a section referenced where this technology is described.

35. Section 7.3, p. 7-7, top of page: The last sentence states that the "hot spot" areas are unknown, which indicates that development of a sampling grid that is statistically justifiable is difficult or impossible, as the text states. Development of a sampling grid must then be based on good judgement and a review of all known information, concerning types of material and amounts spilled or leaked, site topography, and soil cover.

    The authors should include for each site a justification for the grid size based solely on site-specific conditions. The rationale presented in the following paragraphs is based on assumptions that do not take into account the factors above but rely on a risk-based area size, chosen to fit requirements of a statistically driven model. The final grid spacing chosen appears sufficient to locate any contamination at the sites; however, the rationale for the grid spacing is not clear and can be questioned using the assumptions presented in this section.

36. Section 7.3.1, p. 7-9: Relate the borings to overall site conditions to include inspection of the tanks and soil-gas survey as well as surface sampling (same comment for Section 7.3.2)]. One of the main concerns at this site is that the unlined tanks may have leaked. In that particular case, the surface sampling would not be related to the leak (i.e., surface spills and leaks are two different events). The rationale tying the borings to the surface sampling should be reevaluated.

    It would appear appropriate to include an inspection of the inside of the tanks and the sampling of any residue.

37. Section 7.3.3, p. 7-14, paragraph 1: Because acid spills are a concern at this site, screening for pH would also be appropriate.

38. Section 7.3.3, p. 7-14, paragraph 3: The use of three upgradient wells appears excessive and requires justification. If the sole purpose is to define groundwater gradient, placing two of the wells in the likely downgradient direction would provide the same hydrologic information, while allowing for future sampling for groundwater quality.

39. Section 7.3.4, p. 7-18, top of page: Please clarify why only six of the nine samples are being tested for the full range of analytes and also identify which are the six sample locations.

40. Section 7.3.6, p. 7-20, paragraph 1: Specify the number of lysimeters and tensiometers and the intended IHSS in which they are to be placed.

41. Section 7.3.9, p. 7-29, paragraph 1: Section 2.2.9 states that volatiles and semivolatiles are present at this site. On the basis of that information, a soil-gas survey appears appropriate.

42. Section 7.3.10, p. 7-29, paragraph 1: Because only acids are of concern at this site, it may be appropriate to drop semivolatiles from the suite of analytical parameters.

43. Section 7.3.11, p. 7-31, paragraph 1: Please clarify if the sampling suite presented here is related to the contaminant of concern, nitrates, specified in Section 2.2.11.2.

44. Section 7.3.12, p. 7-34, paragraph 1: Parameters for the various radioactive isotopes described in Section 2.2.12.2 for this site should be included in the analytical suite, or justification presented for not including them should be provided.

45. Figure 7.3-13, p. 7-35: It may be appropriate to sample the ditch as well because any runoff from this IHSS and IHSS 182 would probably flow through here.

46. Section 7.3.13, p. 7-36, top of page: There appears to be some confusion about the total number of soil samples. Five is stated earlier, five are shown on the figure, and here the text states six. Please clarify.

    Also, provide justification for not sampling the full suite for all samples. The measure of pH should be added because acid spills are a concern at this site.

47. Section 7.3.15, p. 7-40, paragraph 1: Provide justification for not sampling the full suite on all samples.

48. Section 7.4.2, p. 7-43, paragraph 1: Please provide a reference to RFP background conditions.

49. Section 7.4.11, p. 7-51, paragraph 4: Because this Standard Operating Procedure (SOP)is not available for review, it may be appropriate to state that regulatory approval of the SOP will be obtained.

50. Table 7-3, p. 7-62: Clarify whether the detection limits presented represent maximum or minimum values. Also, if possible, identify the detector(s) to be used for this investigation.

51. Section 7.6, p. 7-65, paragraph 1: Please define "timely basis" (i.e., once a day, week, month).

52. Section 8.3.1, p. 8-11: There appears to be a conflict between the path chosen for the field investigation, which is IHSS-specific, and the discussion presented here for the risk assessment, which discusses an Operable Unit 10 site model. The field program and the risk assessment methodology will diverge at that point, because the reviewers concur with the field program approach. We recommend that the risk assessment methodology adopt a IHSS-specific approach.